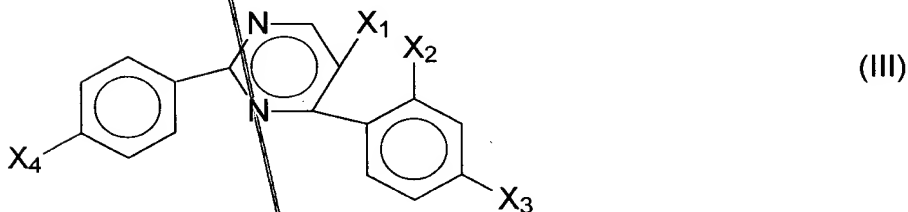
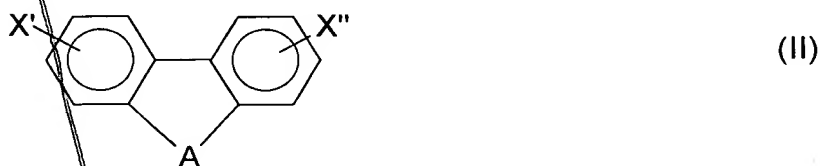
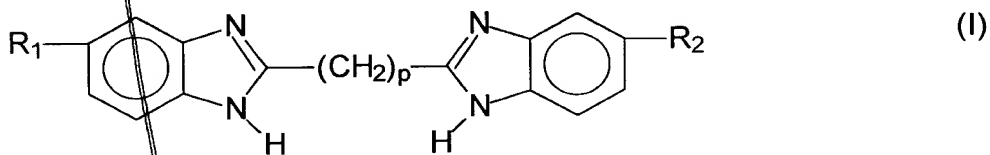


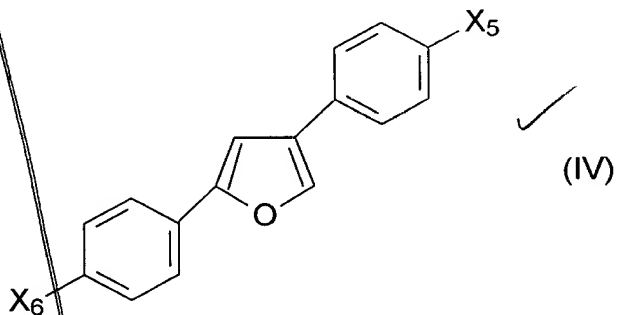
THAT WHICH IS CLAIMED:

1. A method of treating infectious bursal disease (IBD) in an avian subject in need of such treatment, said method comprising administering to said subject a compound selected from the group consisting of:

5



and

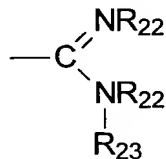


and the pharmaceutically acceptable salt thereof, wherein:

p is an integer ranging from 1 to 8;

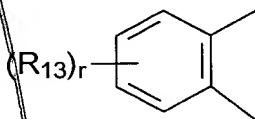
A is selected from O, S, and NR wherein R may be H or loweralkyl;

, X' , X'' , X_3 , X_4 , X_5 , X_6 , R_1 , R_2 , R_3 , and R_4 are independently selected and each represented by loweralkyl, loweralkoxy, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylaminoalkyl, cycloalkyl, aryl, alkylaryl, halogen or:

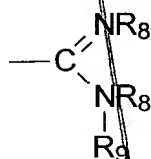


wherein:

each R_{22} and R_{23} independently selected from the group consisting of H, loweralkyl, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylaminoalkyl, cycloalkyl, aryl, and alkylaryl, or two R_{22} groups together represent C_2 - C_{10} alkyl, hydroxyalkyl, or alkylene; or the two R_{22} groups together represent cycloalkyl or:



wherein r is from 1 to 3 and R_{13} is H,



or $\text{---CONHR}_{10}\text{NR}_{11}\text{R}_{12}$, wherein:

R_{10} is loweralkyl; R_{11} and R_{12} are independently selected from the group consisting of H and lower alkyl; each R_8 is independently selected from the group consisting of H, loweralkyl, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylaminoalkyl, cycloalkyl, aryl, and alkylaryl, or two R_8 groups together represent C_2 - C_{10} alkylene; R_9 is H, hydroxy, loweralkyl, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylaminoalkyl, cycloalkyl, aryl, or alkylaryl;

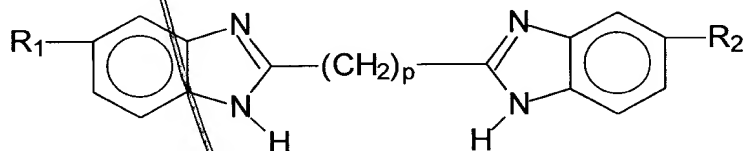
wherein X' and X'' may be in the meta or para positions;

X₁ and X₂ are independently selected from H, loweralkyl, or loweralkoxy;

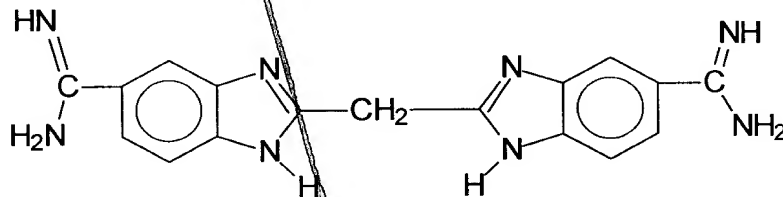
and wherein said compound thereof is administered in an amount
5 sufficient to treat IBD.

2. The method according to Claim 1, wherein the avian subject is a chicken.

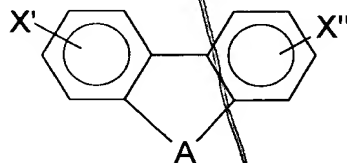
3. The method according to Claim 1, wherein said compound is represented by the formula:



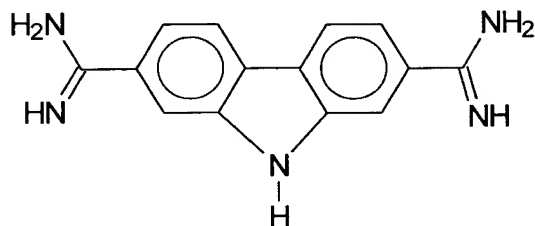
4. The method according to Claim 3, wherein said compound is represented by the formula:



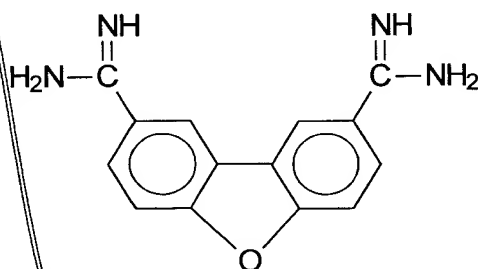
5. The method according to Claim 1, wherein said compound is represented by the formula:



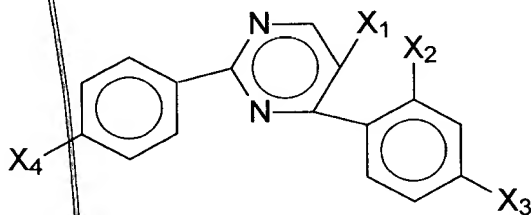
6. The method according to Claim 1, wherein said compound is represented by the formula:



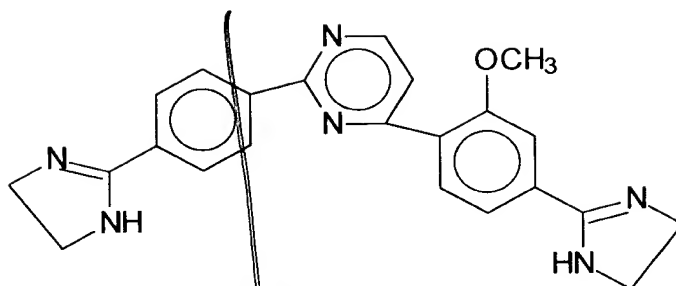
7. The method according to Claim 1, wherein said compound is represented by the formula:



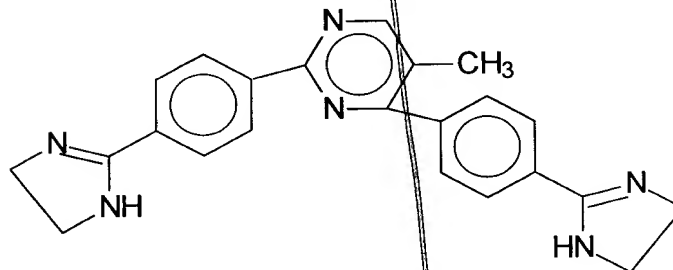
8. The method according to Claim 1, wherein said compound is represented by the formula:



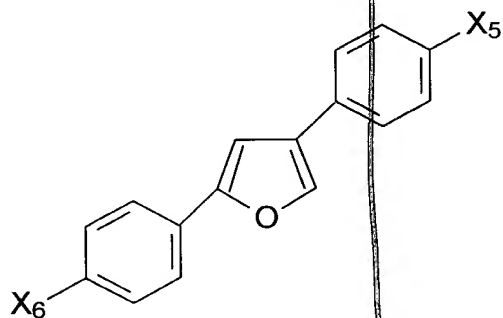
9. The method according to Claim 8, wherein said compound is represented by the formula:



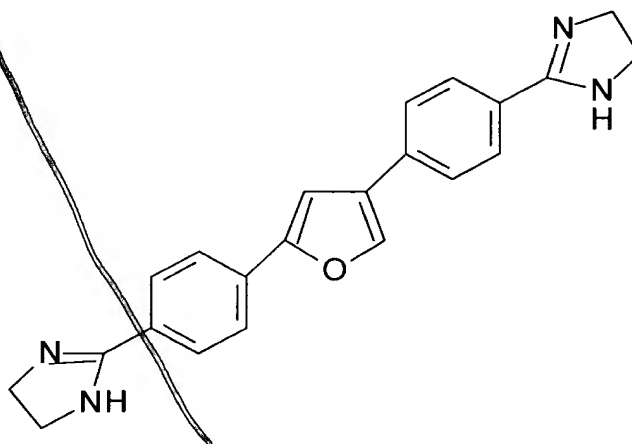
10. The method according to Claim 8, wherein said compound is represented by the formula:



11. The method according to Claim 1, wherein said compound is represented by the formula:



12. The method according to Claim 11, wherein said compound is represented by the formula:



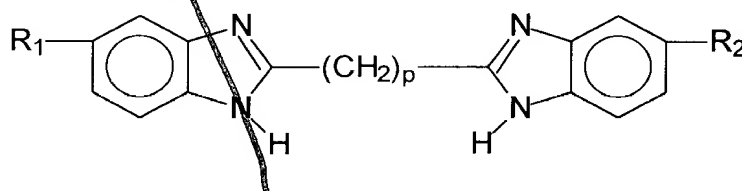
A2
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13. The method according to Claim 1, wherein said compound is present in a pharmaceutical formulation, and wherein said pharmaceutical formulation further comprises a pharmaceutically acceptable carrier.

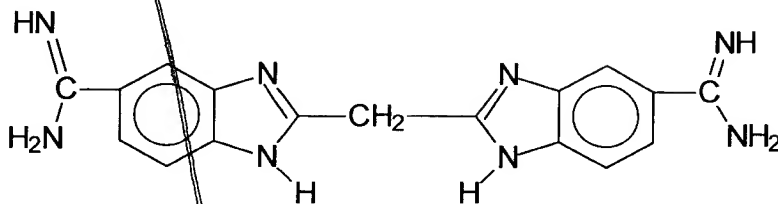
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14. The method according to Claim 13, wherein said compound is represented by the formula:

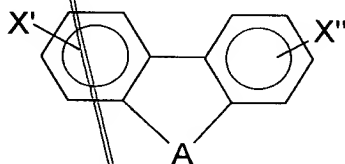


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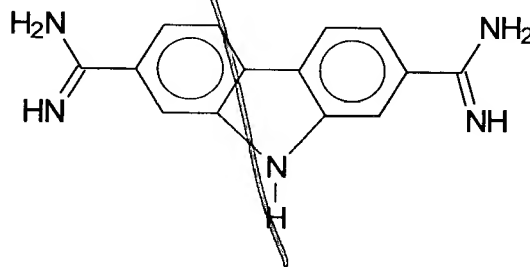
15. The method according to Claim 14, wherein said compound is represented by the formula:



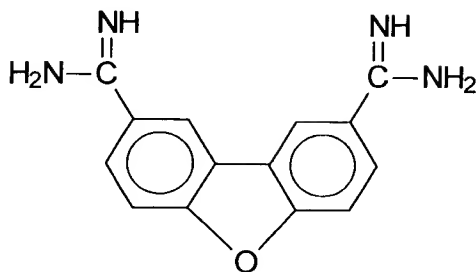
16. The method according to Claim 13, wherein said compound is represented by the formula:



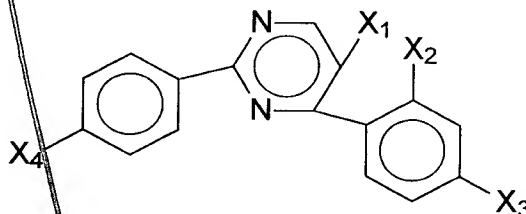
17. The method according to Claim 16, wherein said compound is represented by the formula:



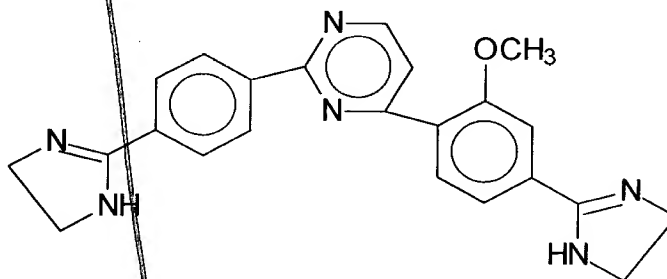
18. The method according to Claim 16, wherein said compound is represented by the formula:



5 19. The method according to Claim 13, wherein said compound is represented by the formula:



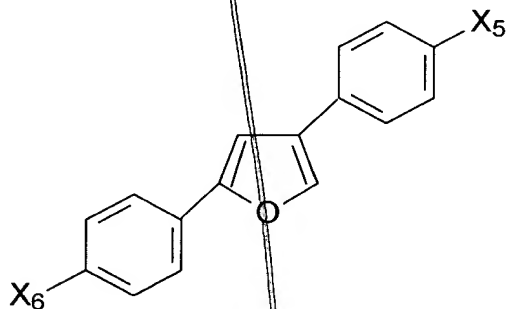
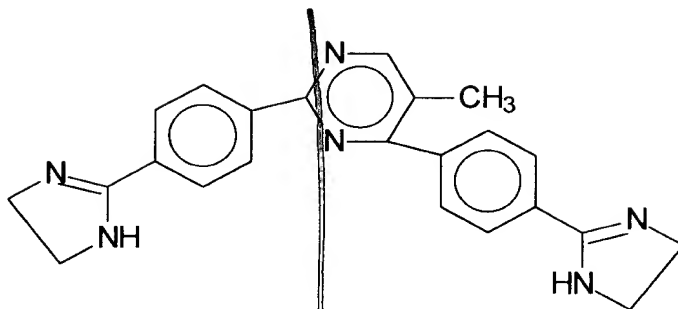
10 20. The method according to Claim 19, wherein said compound is represented by the formula:



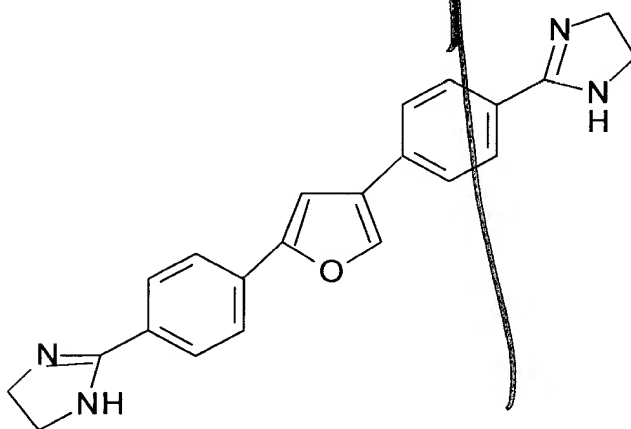
15 21. The method according to Claim 19, wherein said compound is represented by the formula:

13
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22. The method according to Claim 13, wherein said compound is represented by the formula:



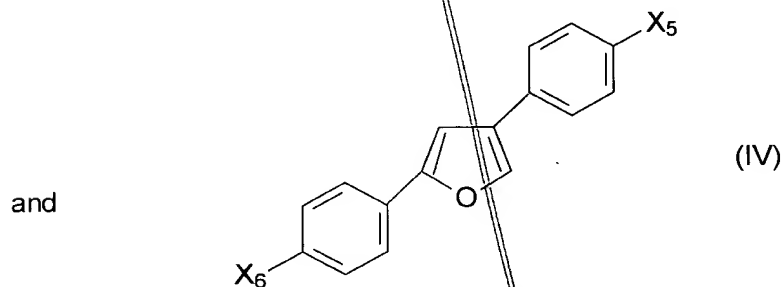
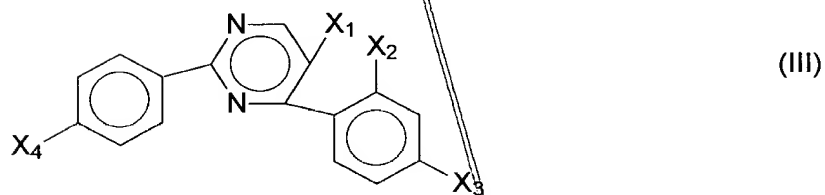
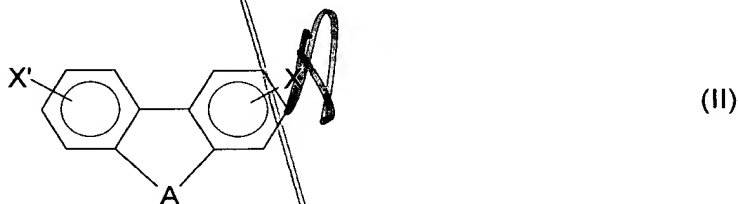
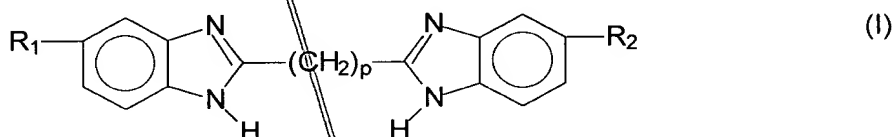
10 23. The method according to Claim 22, wherein said compound is represented by the formula:



24. The method according to Claim 13, wherein said administering step is administered to said avian subject *in ovo*.

25. The method according to Claim 13, wherein said administering step is administered to said avian subject post-hatch.

26. A method for producing active immunity against infectious bursal virus disease (IBDV) in an avian subject, comprising administering to a subject an immunogenic-amount of an IBDV vaccine and a compound selected from the group consisting of:



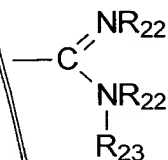
and the pharmaceutically acceptable salts thereof, wherein:

p is an integer ranging from 1 to 8;

A is selected from O, S, and NR wherein R may be H or loweralkyl;

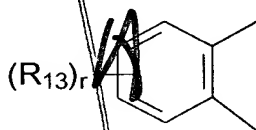
X', X'', X₃, X₄, X₅, X₆, R₁, R₂, R₃, and R₄ are independently selected and

- 5 each represented by loweralkyl, loweralkoxy, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylaminoalkyl, cycloalkyl, aryl, alkylaryl, halogen or:



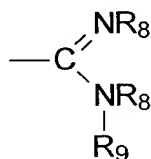
wherein:

- 10 each R₂₂ and R₂₃ independently selected from the group consisting of H, loweralkyl, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylaminoalkyl, cycloalkyl, aryl, and alkylaryl, or two R₂₂ groups together represent C₂-C₁₀ alkyl, hydroxyalkyl, or alkylene; or the two R₂₂ groups together represent cycloalkyl or:



15

wherein r is from 1 to 3 and R₁₃ is H,



or -CONHR₁₀NR₁₁R₁₂, wherein:

- 20 R₁₀ is loweralkyl; R₁₁ and R₁₂ are independently selected from the group consisting of H and lower alkyl; each R₈ is independently selected from the group consisting of H, loweralkyl, alkoxyalkyl, hydroxyalkyl, aminoalkyl,

alkylaminoalkyl, cycloalkyl, aryl, and alkylaryl, or two R₈ groups together represent C₂-C₁₀ alkylene; R₉ is H, hydroxy, loweralkyl, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylaminoalkyl, cycloalkyl, aryl, or alkylaryl; wherein X' and X'' may be in the meta or para positions;

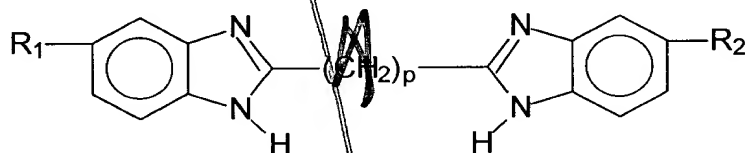
- 5 X₁ and X₂ are independently selected from H, loweralkyl, or loweralkoxy;

 and wherein said compound is administered in an amount sufficient to provide an immune response in the avian subject.

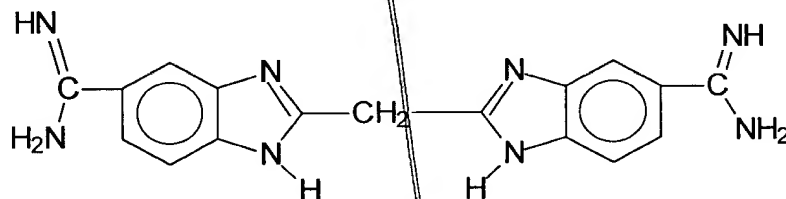
- 10 27. The method according to Claim 26, wherein the avian subject is a chicken.

 28. The method according to Claim 26, wherein said compound is represented by the formula:

15

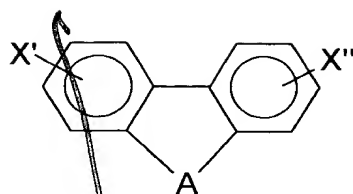


 29. The method according to Claim 28, wherein said compound is represented by the formula:

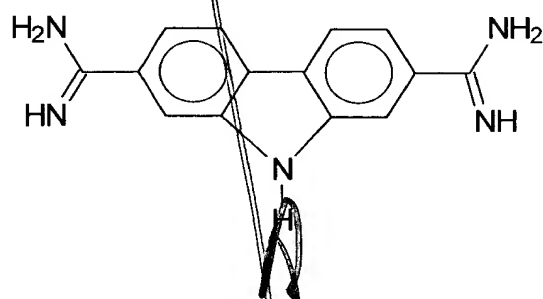


20

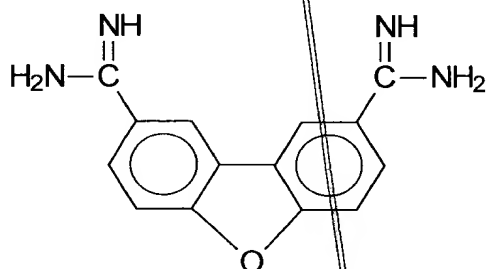
 30. The method according to Claim 26, wherein said compound is represented by the formula:



31. The method according to Claim 30, wherein said compound is
5 represented by the formula:

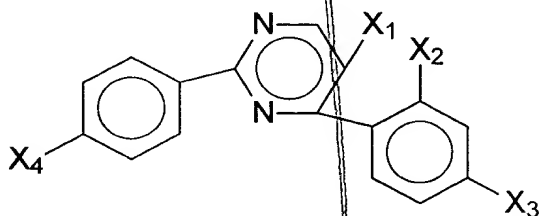


32. The method according to Claim 30, wherein said compound is
represented by the formula:

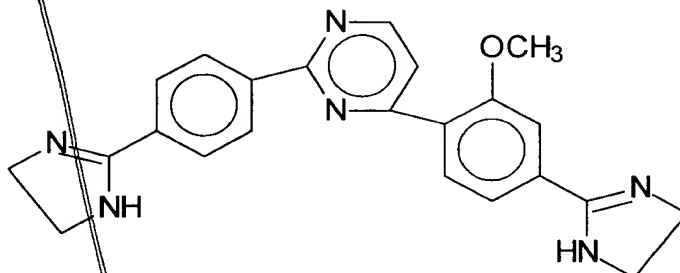


10

33. The method according to Claim 26, wherein said compound is
represented by the formula:

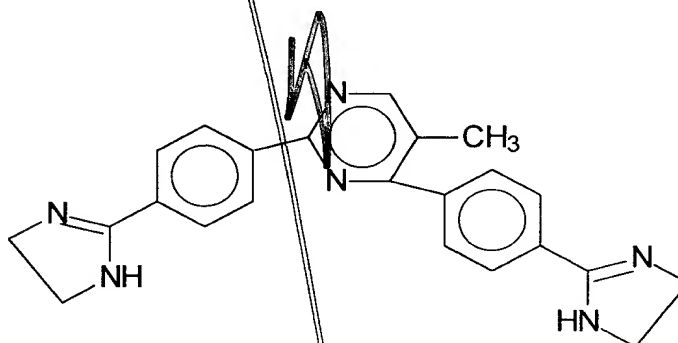


34. The method according to Claim 33, wherein said compound is represented by the formula:



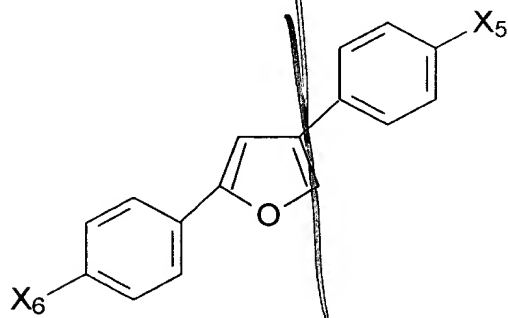
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35. The method according to Claim 33, wherein said compound is represented by the formula:

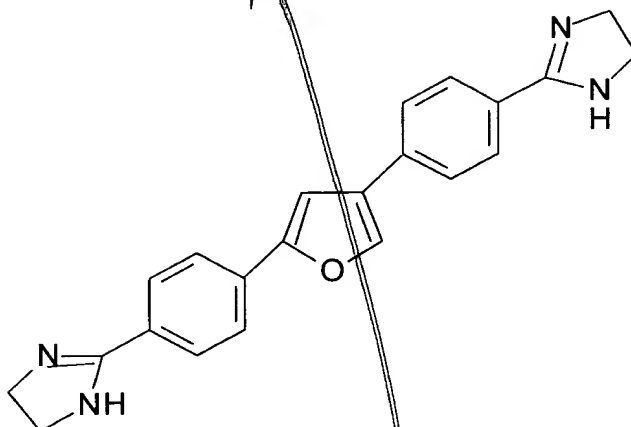


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36. The method according to Claim 26, wherein said compound is represented by the formula:

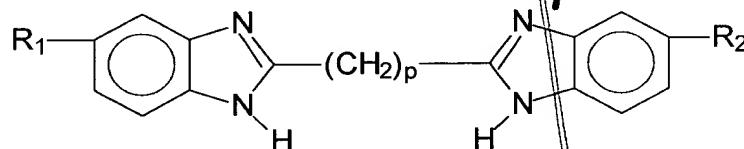


37. The method according to Claim 36, wherein said compound is represented by the formula:

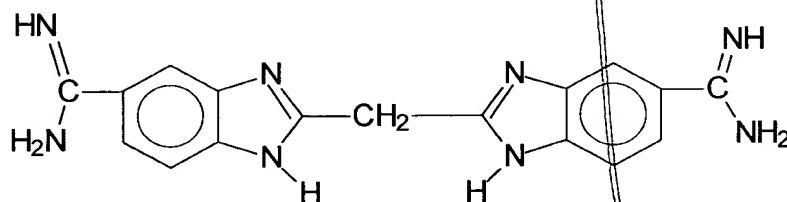


5 38. The method according to Claim 26, wherein said compound is present in a pharmaceutical formulation and wherein said pharmaceutical formulation further comprises a pharmaceutically acceptable carrier.

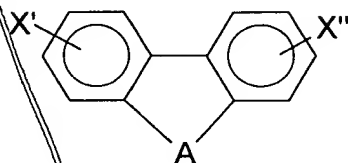
10 39. The method according to Claim 38, wherein said compound is represented by the formula:



40. The method according to Claim 39, wherein said compound is represented by the formula:

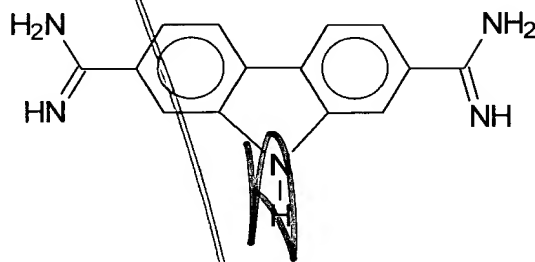


41. The method according to Claim 38, wherein said compound is represented by the formula:



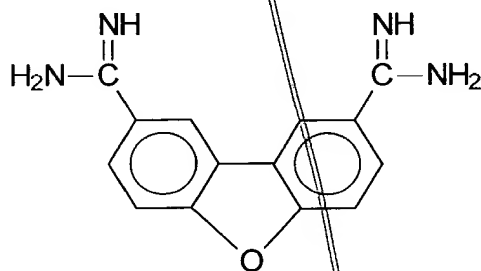
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42. The method according to Claim 41, wherein said compound is represented by the formula:

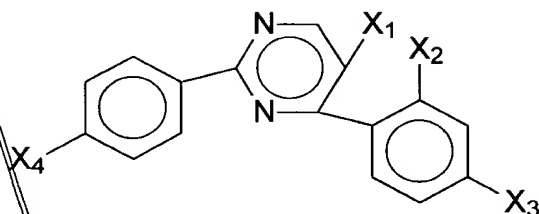


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43. The method according to Claim 41, wherein said compound is represented by the formula:

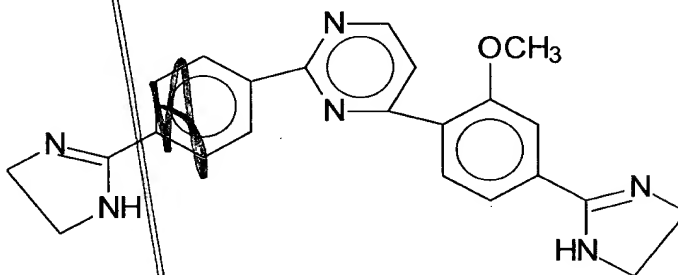


44. The method according to Claim 38, wherein said compound is represented by the formula:



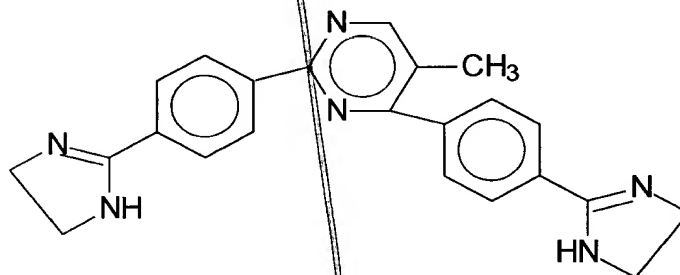
5

45. The method according to Claim 44, wherein said compound is represented by the formula:



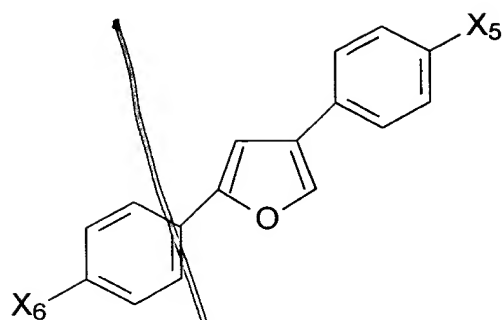
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46. The method according to Claim 44, wherein said compound is represented by the formula:

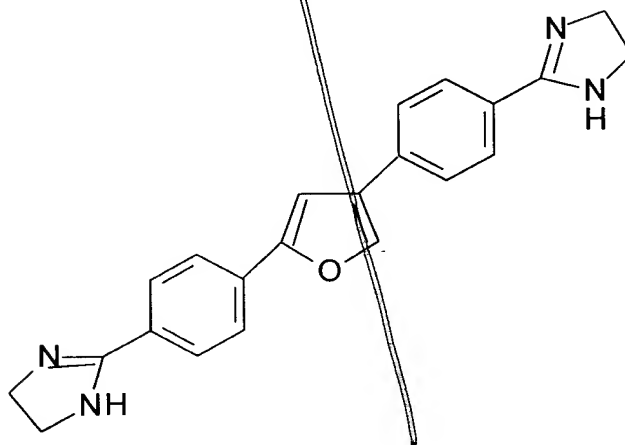


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47. The method according to Claim 38, wherein said compound is represented by the formula:

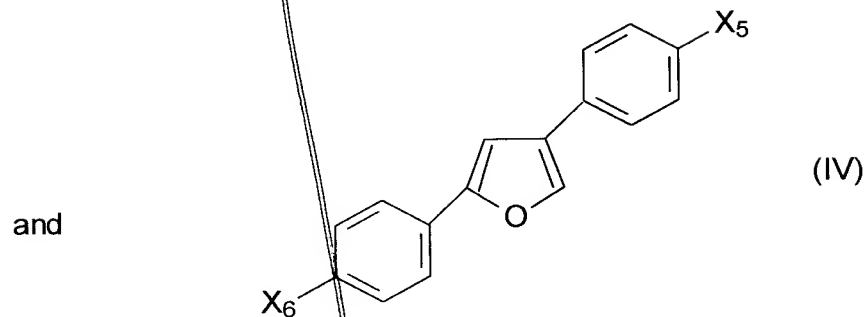
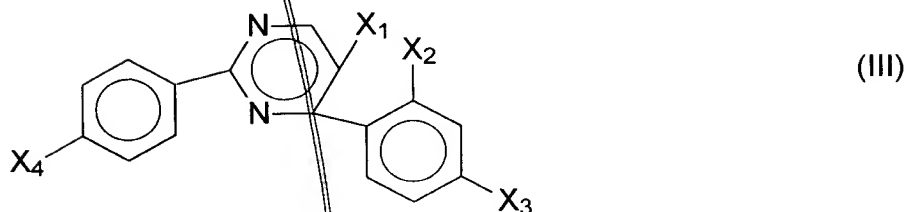
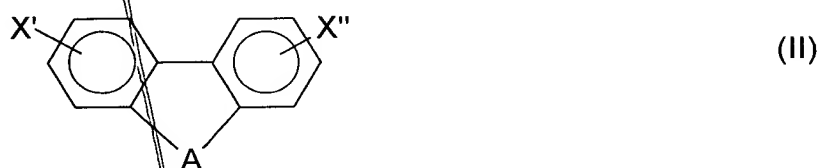
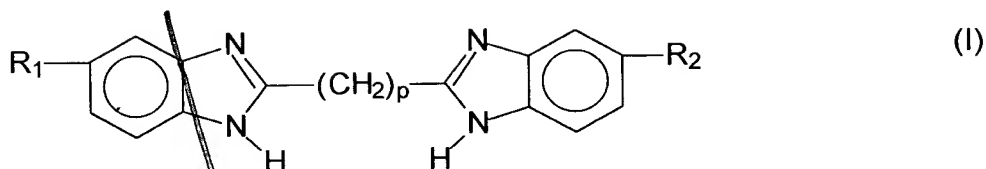


48. The method according to Claim 47, wherein said compound is
5 represented by the formula:



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49. A pharmaceutical formulation for the treatment of infectious
10 bursal virus disease (IBDV) in an avian subject, comprising a compound
selected from the group consisting of:



and

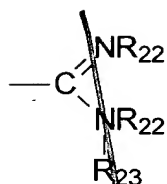
and the pharmaceutically acceptable salts thereof, wherein:

5 p is an integer ranging from 1 to 8;

A is selected from O, S, and NR wherein R may be H or loweralkyl;

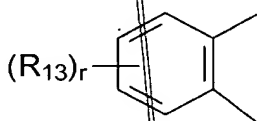
X', X'', X3, X4, X5, X6, R1, R2, R3, and R4 are independently selected and each represented by loweralkyl, loweralkoxy, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylaminoalkyl, cycloalkyl, aryl, alkylaryl, halogen or:

10

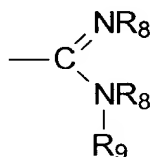


wherein:

each R_{22} and R_{23} independently selected from the group consisting of H, loweralkyl, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylaminoalkyl, cycloalkyl, aryl, and alkylaryl, or two R_{22} groups together represent $\text{C}_2\text{-C}_{10}$ alkyl, hydroxyalkyl, or alkylene; or the two R_{22} groups together represent cycloalkyl or:



wherein r is from 1 to 3 and R_{13} is H,

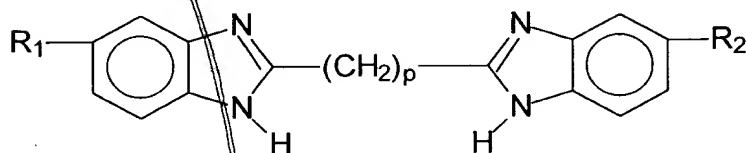


or $-\text{CONHR}_{10}\text{NR}_{11}\text{R}_{12}$, wherein:

R_{10} is loweralkyl; R_{11} and R_{12} are independently selected from the group consisting of H and lower alkyl; each R_8 is independently selected from the group consisting of H, loweralkyl, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylaminoalkyl, cycloalkyl, aryl, and alkylaryl, or two R_8 groups together represent $\text{C}_2\text{-C}_{10}$ alkylene; R_9 is H, hydroxy, loweralkyl, alkoxyalkyl, hydroxyalkyl, aminoalkyl, alkylaminoalkyl, cycloalkyl, aryl, or alkylaryl; wherein X' and X'' may be in the meta or para positions;

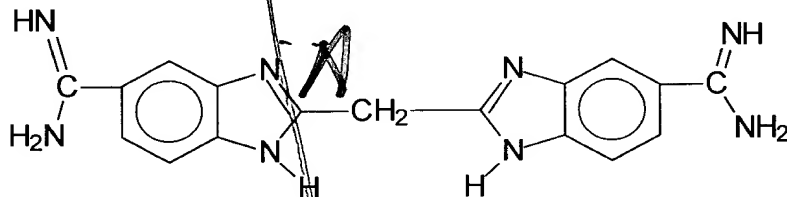
X_1 and X_2 are independently selected from H, loweralkyl, or loweralkoxy; in a pharmaceutically acceptable carrier.

50. The pharmaceutical formulation according to Claim 49, wherein said compound is represented by the formula:



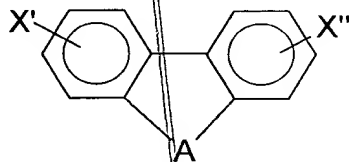
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51. The pharmaceutical formulation according to Claim 50, wherein said compound is represented by the formula:



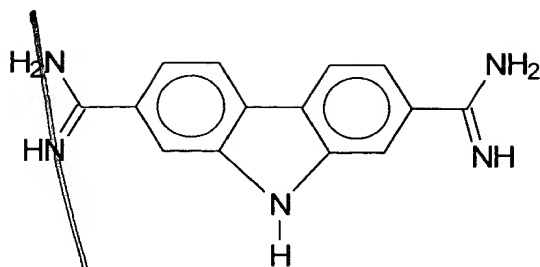
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52. The pharmaceutical formulation according to Claim 49, wherein said compound is represented by the formula:

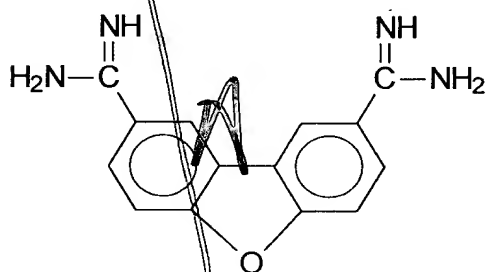


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53. The pharmaceutical formulation according to Claim 52, wherein said compound is represented by the formula:

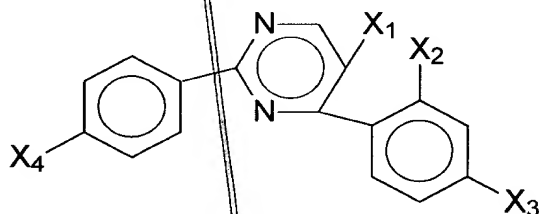


54. The pharmaceutical formulation according to Claim 52, wherein said compound is represented by the formula:



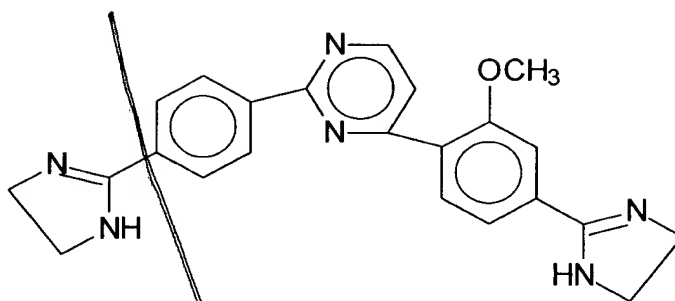
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55. The pharmaceutical formulation according to Claim 49, wherein said compound is represented by the formula:

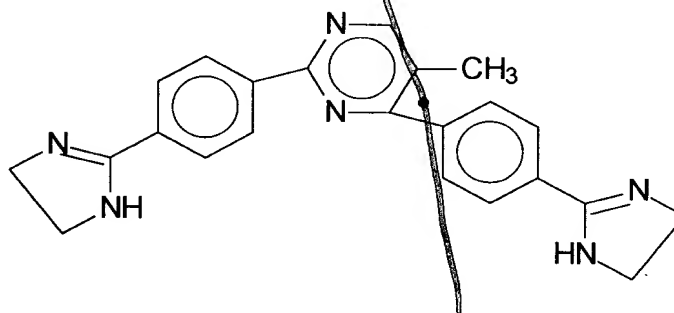


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56. The method according to Claim 55, wherein said compound is represented by the formula:



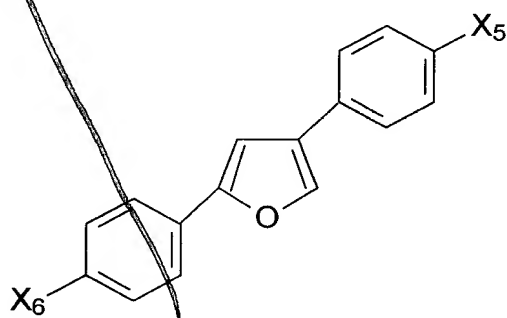
57. The pharmaceutical formulation according to Claim 55, wherein said compound is represented by the formula:



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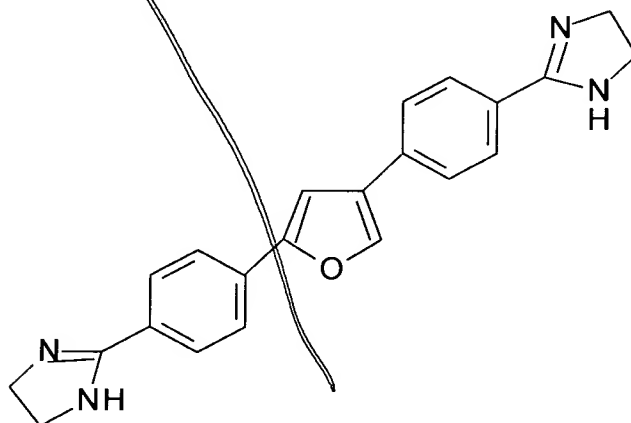
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58. The pharmaceutical formulation according to Claim 49, wherein said compound is represented by the formula:



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59. The pharmaceutical formulation according to Claim 58, wherein said compound is represented by the formula:



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